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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,094	11/30/2001	Timothy E. Fiscus	0325.00517	4335

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EXAMINER

YOHA, CONNIE C

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 04/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/998,094

Applicant(s)

FISCUS, TIMOTHY E.

Examiner

Connie c. Yoha

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. This office acknowledges receipt of the following items from the Applicant:
Information Disclosure Statement (IDS) filed on 7/13/98 was considered.
2. Claims 1-20 are presented for examination.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1-2, and 4-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Tatematsu Pat. No. 4982369.

With regard to claim 1 and 12, Tatematsu discloses an apparatus comprising: an array of memory cells (fig. 1, 12); a refresh circuit (fig. 1, 18) configured to refresh said array in response to a refresh control signal (fig. 1, ORFSH); a first monitor cell (fig. 1, PMC1) configured to have a charge leakage (data value of "1") similar to the memory cells; a second monitor cell (fig. 1, PMC2) configured to have a discharge leakage similar to the memory cells (data value of "0"); a control circuit (fig. 1, 14, 16) configured to generate said refresh control signal (fig. 1, ORFSH) in response to either a voltage level of the first monitor cell rising above a first pre-determined threshold level or a

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voltage level of the second monitor cell dropping below a second pre-determined threshold level, wherein said first and said second threshold levels are different (col. 3, line 45-col. 4, line 11) (also with regard to claim 4, 7, and 11).

With regard to claim 2, Tatematsu discloses the control circuit comprises: a first comparator circuit (fig. 1, Q1) configured to generate a first control signal in response to the voltage level of the first monitor cell rising above the first pre-determined threshold level ; a second comparator circuit (fig. 1, Q2) configured to generate a second control signal in response to the voltage level of the second monitor cell rising above the second pre-determined threshold level (col. 3, line 45-55); and a logic circuit (fig. 1, AG) configured to generate said refresh control signal (fig. 1, ORFSH) in response to the first and the second control signals (col. 4, line 1-5).

With regard to claim 5, Tatematsu discloses wherein the first monitor cell and the second monitor cell comprise memory cells that are structurally similar to memory cells of the array (col. 3, line 28-31) (also with regard to claim 6).

With regard to claim 8, Tatematsu discloses the apparatus further comprising: a plurality of monitor cells (fig. 1, PMC1-PMC3) configured to have a charge leakage (data value of "1") similar to the memory cells; a plurality of monitor cells (fig. PMC1-PMC3) configured to have a discharge leakage (data value of "0") similar to said memory cells, wherein said control circuit is further configured to generate said refresh control signal in response to any of the monitor cells exceeding a respective one of the first pre-determined threshold level or said second pre-determined threshold level (col. 5, line 28-col. 6, line 9).

With regard to claim 9, Tatematsu discloses wherein the first monitor cell and the second monitor cell comprise memory cells of the array (fig. 3b, 14) (also with regard to claim 10).

Drafted as Method claim

4. As per claim 13-20 encompass the same scope of invention as to that of claim 1-12 except they draft in method format instead of apparatus format. The claim is therefore rejected for the same reason as set forth above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tatematsu Pat. No. 4982369.

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With regard to claim 3, Tatematsu, as applied in prior rejection, disclosed all claimed subject matter except wherein the logic circuit comprises a one-shot circuit configured to generate the refresh control signal having a predetermined pulse width. However, it would have an obvious matter of design choice for one having an ordinary skill in the art at the time the invention was made to include a one-shot circuit in the apparatus as state by the applicant (see specification, page 9; line 1-8).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. Chen Hsu et al (6483764), Cho et al (6229747) and Cleveland et al (5852582) disclose a memory device with refresh operation.

7. When responding to the office action, Applicants' are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

8. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02 (b)).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to whose telephone number is (703) 306-5731. The examiner can normally be reached on Mon. - Fri. from 8:00 A.M. to 5:30 PM. The examiner's supervisor, David Nelms, can be reached on (703) 308-4910. The fax phone number for this Group is (703) 308-7722. Any inquiry of a general nature or

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relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-0956.


C. Yoha

April 2003



Connie Yoha

Patent Examiner

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